

Besides retrospective studies, recent prospective studies have also found an association of oral contraceptives and venous thrombosis.⁴ Even the Walnut Creek study to which Dr Hougie refers found that oral contraceptive use was associated with an increased risk of idiopathic thromboembolism—that is, thrombosis without a recent surgical procedure, trauma, malignant condition or other known predisposing factor.⁵ Some investigators feel that this evidence is weakened by the study's failure to find a statistically significant effect in patients predisposed to venous thromboembolism. They argue that an adverse effect of oral contraceptives should be most pronounced in patients at high risk for thrombosis. However, it can also be argued that other predisposing factors, when present, overwhelm the effect of oral contraceptives and prevent a small but real effect of those agents from being discernible.

In addition to the results of epidemiologic studies, much indirect evidence indicates an association of oral contraceptives and thromboembolic disease. High-dose, noncontraceptive estrogen therapy, such as for suppression of postpartum lactation, has been shown to increase the incidence of thromboembolism.⁶ Furthermore, the decreased morbidity from venous thromboembolic disease in reproductive-age women that occurred coincidentally with the introduction of contraceptive pills with reduced estrogen content⁷ also implicates estrogen as a risk factor for deep venous thrombosis. Finally, the dose-related effect of oral contraceptives to create an apparent imbalance of the hemostatic mechanism towards hypercoagulability, while of uncertain physiologic significance, is consistent with the reported correlation between estrogen dose and the risk of venous thromboembolism.⁸

Thromboembolic events in all young women are infrequent, and so a conclusive answer regarding their incidence in oral contraceptive users as compared with nonusers is unlikely because of the enormous size required of a definitive study. While there is no undeniable proof for a causal relationship between oral contraceptives and venous thrombosis, there is a wealth of evidence for the association of the two which, after reviewing, I and many others have chosen to accept rather than disregard as the result of bias. Yet, I would emphasize that since the risks of oral contraceptive use are small and further reduced by minimizing the steroid content of the preparation used, oral agents are a wise choice for many women who want contraception.

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Relationship Between Costs and Quality of Medical Care

TO THE EDITOR: Your editorial in the August issue dealing with the measurement of quality and costs of medical care¹ reminded me of an interesting proposed relationship between the two. As a student several years ago in the Community Medicine program at the University of Utah School of Medicine I was exposed to the following equation:

$$\text{Quality of Medical Care} = \frac{\text{Outcome of Medical Care}}{\text{Cost of Medical Care}}$$

Perhaps it was my undergraduate training in mathematics that predisposed me to "latch on" to this equation in such a complete way. Ever since, I have not been able to read an article or editorial dealing with costs and quality without thinking in terms of this relationship.

The beauty of such an expression is that it defines an admittedly "soft" or subjective variable (quality) in terms of two "hard" or more objective variables (outcome, cost). The outcome of a medical care event may be considered in terms of health or functional status, years of life saved or whatever. Costs may include direct costs only or might also include the indirect costs associated with the provision or consumption of that care. To the extent that one increases the value of the numerator while holding the denominator constant or, alternatively, decreases the denominator while holding the numerator constant, quality increases.

I must say, however, that I have always been troubled by my inability to "play" with this equation. For example, if one attempts to move cost from the denominator of the right-hand expression and place it in the left-hand expression what results is as follows: cost · quality = outcome. If one holds quality constant and increases cost, does outcome necessarily increase (improve)? Then if one wishes to move quality into the denominator of the right hand expression (by dividing each side by quality), what results is cost = $\frac{\text{outcome}}{\text{quality}}$. If one then holds outcome constant and increases quality does cost necessarily go down?

At any rate, given the importance of understanding the relationships between costs of medical care and quality of medical care, we might all benefit from adding this perspective to our conceptual armamentarium.

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Enterococcal Endocarditis After Sigmoidoscopy

TO THE EDITOR: The article by Rodriguez and Levine¹ in the June 1984 issue was timely, indeed. A patient of mine had just been admitted to Santa Monica Hospital with enterococemia. She was a 67-year-old woman with a porcine mitral valve prosthesis for rheumatic heart disease, a pacemaker and multiple other medical problems.